TYAN® FT77

B7015

Service Engineer's Manual

PREFACE

Copyright

This publication, including all photographs, illustrations, and software, is protected under international copyright laws, with all rights reserved. Neither this manual, nor any material contained herein, may be reproduced without written consent of manufacturer.

Copyright 2010 MiTAC International Corporation. All rights reserved.
TYAN® is a registered trademark of MiTAC International Corporation.

Version 1.1

Disclaimer

Information contained in this document is furnished by MiTAC Computer Corporation and has been reviewed for accuracy and reliability prior to printing. TYAN® assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of TYAN® products including liability or warranties relating to fitness for a particular purpose or merchantability. TYAN® retains the right to make changes to produce descriptions and/or specifications at any time, without notice. In no event will TYAN® be held liable for any direct or indirect, incidental or consequential damage, loss of use, loss of data or other malady resulting from errors or inaccuracies of information contained in this document.

Trademark Recognition

All registered and unregistered trademarks and company names contain--ed in this manual are property of their respective owners including, but not limited to the following.

TYAN® is a trademark of MiTAC Computer Corporation.

Intel® is a trademark of Intel Corporation.

AMI®, AMIBIOS® and combinations thereof are trademarks of AMI Technologies.

Microsoft®, Windows® are trademarks of Microsoft Corporation.

Winbond® is a trademark of Winbond Electronics Corporation.

Portable Document Format (PDF) is a trademark of Adobe Corporation.

FCC Declaration

Notice for the USA

Compliance Information Statement (Declaration of Conformity Procedure) DoC FCC Part 15: This device complies with part 15 of the FCC Rules

This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions:

- This device must not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesirable operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Notice for Canada

This Class A digital apparatus complies with Canadian ICES-003. Cet appareil numérique de la Classe A est conforme à la norme NMB-003 du Canada.

Notice for Europe (CE Mark)

This product is in conformity with the Council Directive 2004/108/EC.

CAUTION: Lithium battery included with this board. Do not puncture, mutilate, or dispose of battery in fire. There will be danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by manufacturer. Dispose of used battery according to manufacturer instructions and in accordance with your local regulations.

About this Manual

This manual provides you with instructions on installing your FT77-B7015. This Manual is intended for experienced users and integrators with hardware knowledge of personal computers.

This manual is consisted of the following parts:

Chapter1: Provides an introduction to the FT77-B7015 bare--bones, standard parts list, describes the external components, gives a table of key components, and provides block diagrams of the system.

Chapter2: Covers procedures on installing the CPU, memory modules, add on card and hard drives.

Chapter3: Covers removal and replacement procedures for pre-installed components.

Appendix : Describes the differences between motherboard BIOS and system BIOS; introduces how to install the internal HDD, list the cable connection and FRU part tables for reference of system setup; and technical support in case a problem arises with your system.

For information on the mainboard, please refer to the attached mainboard user's manual. You can find the detailed description about jumper and BIOS settings from the mainboard manual.

SAFETY INFORMATION

Before installing and using FT77-B7015, take note of the following precautions:

- Read all instructions carefully.
- Do not place the unit on an unstable surface, cart, or stand.
- Do not block the slots and opening on the unit, which are provided for ventilation.
- Only use the power source indicated on the marking label. If you are not sure, contact the power company.
- The unit uses a three-wire ground cable, which is equipped with a third pin to ground the unit and prevent electric shock. Do not defeat the pur--pose of this pin. If you outlet does not support this kind of plug, contact your electrician to replace your obsolete outlet.
- Do not place anything on the power cord. Place the power cord where it will not be in the way of foot traffic.
- Follow all warnings and cautions in this manual and on the unit case.
- Do not push objects in the ventilation slots as they may touch high volta--ge components and result in shock and damage to the components.
- When replacing parts, ensure that you use parts specified by the manuf--acturer.
- When service or repairs have been done, perform routine safety checks to verify that the system is operating correctly.
- Avoid using the system near water, in direct sunlight, or near a heating device.
- Cover the unit when not in use.

Table of Contents

Chapter 1: Overview 9
1.1 About the TYAN® FT77-B7015 9
1.2 Product Models 10
1.3 Features 11
1.4 Standard Parts List 13
1.4.1 Box Contents 13
1.4.2 Accessories 15
1.5 Optional Parts 16
1.6 About the Product 17
1.6.1 System Front View 17
1.6.2 System Rear View 17
1.6.3 LED Definitions 18
1.6.4 Motherboard Layout 19
1.6.5 Jumpers & Connectors 20
1.6.6 System Block Diagram 25
1.6.7 Internal View 26
Chapter 2: Setting Up 27
2.0.1 Before you Begin 27
2.0.2 Work Area 27
2.0.3 Tools 27
2.0.4 Precautions 28
2.1 Installing Motherboard Components 29
2.1.1 Removing the Chassis Cover 29
2.1.2 Installing the CPU and Heat sink 31
2.1.3 Installing the Memory 34
2.1.4 Installing Expansion Cards 37
2.1.5 Installing Hard Drives 39
2.2 Rack Mounting 40
2.2.1 Installing the Server in a Rack 40
2.2.2 Installing the inner Rails to the Chassis 41
2.2.3 Installing the Outer Rails to the Rack 42
2.2.4 Rack mounting the Server 42
Chapter 3: Replacing Pre-Installed Components 45
3.1 Introduction 45
3.2 Disassembly Flowchart 45
3.3 Removing the Cover 46
3.4 Replacing the Power Supply 46
3.4.1 Replace the power supply 46

3.4.2 Replacing M7015 Power Distribution Board 47
3.4.3 M7015 Power Distribution Board Features 48
3.4.4 Replace the M7015 power backplane 49
3.4.5 M7015 power backplane Features 50
3.5 Replacing M7015 I/O Board 51
3.6 Replacing the LED Control Board 53
3.6.1 M1008 LED Control Board Features 54
3.6.2 M1008 LED Control Board Connector Pin Definition ... 55
3.7 Replacing the System Fan 56
3.8 Replacing the M1801F77-Fan Board 57
3.8.1 M1801F77-Fan Board Features 59
3.8.2 M1801F77 Fan Board Connector Pin Definition 60
3.9 Removing the Motherboard 61
Appendix I: BIOS Differences 63
Appendix II: Installing the Internal 3.5”HDD 65
Appendix III: Cable Connection Tables 67
Appendix IV: FRU Parts Table 69
Appendix V: Technical Support 71

Chapter 1: Overview

1.1 About the TYAN® FT77-B7015

Congratulations on your purchase of the TYAN® FT77-B7015, a highly optimized rack-mountable 4U barebone system. FT77-B7015 is designed to support dual Intel® Nehalem-EP/Nehalem-WS 2S processors and up to 6 channels with 18 DDR3 DIMMs, providing a rich feature set and incredible performance. Leveraging advanced technology from Intel®, FT77-B7015 server system is capable of offering scalable 32 and 64-bit computing, high-bandwidth memory design, and lightning-fast PCI-E bus implementation. FT77-B7015 not only enpowers your company in today's demanding IT environment but also offers a smooth path for future application usage.

FT77-B7015 uses rack-mountable 4U chassis featuring a robust structure and a solid mechanical enclosure. All of this provides FT77-B7015 the power and flexibility to meet the needs of nearly any server application.

1.2 Product Models

Model	HDD Bays	Power supply
B7015F77V2R	Support 2 internal 2.5” SATAII HDD	3600W(1200Wx3) PWR supply

1.3 Features

TYAN® FT77B7015 (B7015F77V2R [BTO])

System	Form Factor	4U Rackmount
	Chassis Model	FT77
	Dimension (D x W x H)	31.31" x 17.24" x 6.93" (770 x 438 x 176mm)
	Motherboard	S7015-CA
	Board Dimension	16"x19" (406.4x482.6mm)
	Gross Weight	29 kg
Front Panel	Buttons	(1) RST / (1) NMI / (1) ID / (1) PWR w/ LED
	LEDs	(1) PWR / (1) HDD / (1) Warning
	I/O Ports	(2) USB ports
Internal Drive Bay	Type / QTY	(2) 2.5" fixed
	Supported HDD Interface	SATA-II 3.0Gb/s
System Cooling Configuration	FAN	(3+3) 12cm redundant fans
Power Supply	Type	ERP1U
	Efficiency	PFC
	Serviceability	Hot-swap
	Input Range	100-127V AC (Low-Line Voltage) / 200-240V AC (High-Line Voltage)
	Frequency	60 Hertz
	Output Watts	2400W [(2+1) 2400W @200-240V], Max. 12Vdc@ 199.6A / 3000W [3 x1000W @100-127V], Max. 12Vdc@ 249.6A; Note: Only one AC inlet allowed per circuit breaker
	GPU Power Connectors	(8) 2x4-pin & (8) 2x3-pin auxiliary 12V power cables included
Processor	Supported CPU Series	Intel Xeon Processor 5500/ 5600 Series
	Socket Type / Q'ty	LGA1366 / (2)
	Thermal Design Power (TDP) wattage	Max up to 130W
	System Bus	Up to 4.8/ 5.86/ 6.4GT/s with Intel QuickPath Interconnect (QPI) support
Chipset	IOH / ICH	Intel (2) 5520 / ICH10R
	Super I/O	Winbond W83627DHG-P
	PCI-E Switch	PLX PEX8647(4)
Memory	Supported DIMM Qty	(9)+(9) DIMM slots
	DIMM Type / Speed	DDR3/DDR3L 800/1066/1333* RDIMM/UDIMM

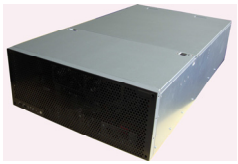
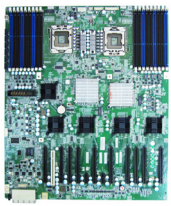
	Capacity	Up to 144GB at launch w/ dual rank RDIMMs
	Memory channel	3 Channels per CPU
	Memory voltage	1.5V or 1.35V
Expansion Slots	**PCI-E**	(2) PCI-E x16 slots (w/ x4 link) / (8) PCI-E Gen.2 x16 slots / (2) PCI-E Gen.2 x1 slots
	Max. HBA Dimension (H x L)	(13) 111.15mm x 312.00mm (FH/FL)
	PCI	(1) PCI 32-bit slot
LAN	**Port Q'ty**	(4)
	Controller	Intel 82574L
Graphic	**Connector type**	D-Sub 15-pin
	Resolution	1600x1200
	Chipset	Aspeed AST2050
I/O Ports	**USB**	(2) ports
	VGA	(1) D-Sub 15-pin port
	RJ-45	(4) ports
System Monitoring	**Chipset**	Winbond W83793G
	Voltage	Monitors voltage for CPU, memory, chipset & power supply
	Temperature	Monitors temperature for CPU & system environment
	LED	Fan fail LED indicator / Over temperature warning indicator
	Others	Watchdog timer support
Server Management	**Onboard Chipset**	Onboard Aspeed AST2050
	AST2050 IPMI Feature	IPMI 2.0 compliant baseboard management controller (BMC) / USB 2.0 virtual hub / BIOS update
	AST2050 iKVM Feature	24-bit high quality video compression / Dual 10/100 Mb/s MAC interfaces
BIOS	**Brand / ROM size**	AMI / 4MB
	Feature	Plug and Play (PnP) /PCI2.3 /WfM2.0 /SMBIOS2.3 /PXE boot / ACPI 2.0 power management /Power on mode after power recovery / User-configurable H/W monitoring
Operating System	**OS supported list**	Please refer to our OS supported list.
Regulation	**FCC (DoC)**	Class A
	CE (DoC)	Yes
Operating Environment	**Operating Temp.**	5° C ~ 55° C (41° F~ 131° F)
	Non-operating Temp.	- 40° C ~ 70° C (-40° F ~ 158° F)

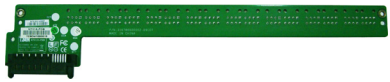
	In/Non-operating Humidity	90%, non-condensing at 35° C
RoHS	**RoHS 6/6 Complaint**	Yes
Package Contains	**Barebone**	(1) FT77B7015 Barebone
	Manual	(1) User's manual
	Installation CD	(1) TYAN® installation CD

1.4 Standard Parts List

This section describes FT77-B7015 package contents and accessories. Open the box carefully and ensure that all components are present and undamaged. The product should arrive packaged as illustrated below.

1.4.1 Box Contents

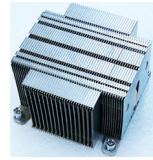
Component	Description
	4U FT77 Chassis
	Main Board,S7015-CA
	1200W Power Supply

	120 x120 x38 MM Fan
	M1008 Front LED control Board_R03
	M7015 Rear I/O Board_R02
	M7015-PBP PWR Backplane Board_R01
	M7015-PDB PWR Distribution board for PCI-E Card_R02
	M1801F77-FB Fan Board

1.4.2 Accessories

If any items are missing or appear damaged, contract your retailer or browse to TYAN®'s website for service: http://www.tyan.com. The Web site also provides information on other TYAN® products, plus FAQs, compatibility lists, BIOS settings, and more.

1 x TYAN® Motherboard Drive CD



2 x Heatsink

HDD Screws

Power Cables
Left to right: Europe, US

Mounting Ears & Screws

Barebone Manual

Rail Kit

Rail with Bracket x 2

Screw Sack

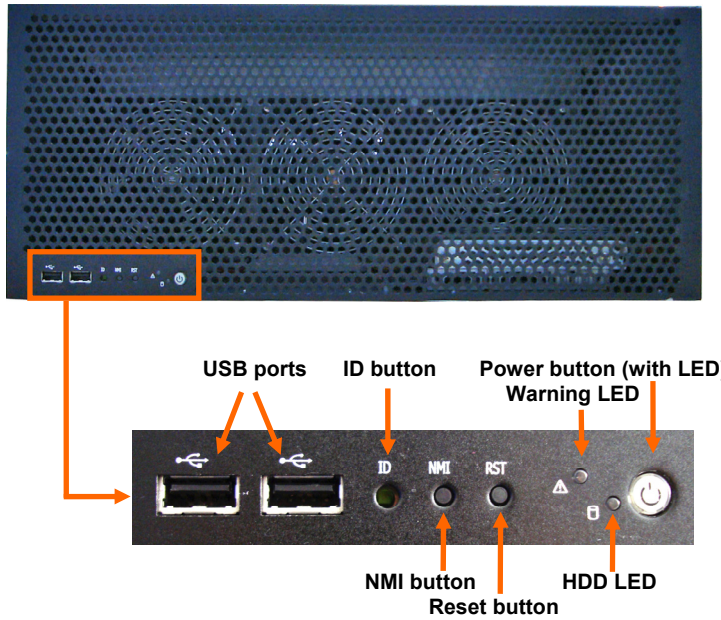
1.5 Optional Parts

Item	Model Number	Picture	Quantity	Description
HDD Bracket	CHDT-0150		1	3.5" HDD Bracket

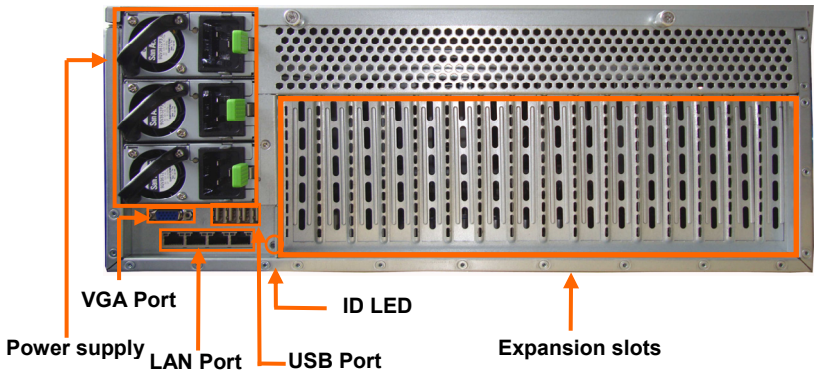
1.6 About the Product

The following views show you the product.

1.6.1 System Front View



1.6.2 System Rear View



1.6.3 LED Definitions

Front Panel

LED	State	Color	Description
Power LED	On	Green	System is turned on
	Off	Off	Power off
HDD LED	Off	Off	HDD not active
	Blinking	Green	HDD active
Warning LED	On	Red	Fan fail/PSU fail/Over temperature/Over voltage

Rear I/O LED

LED	State	Color	Description
RJ-45 Linkage/ Activity(Left)	On	Green	10Mb/100Mb/1000Mb linked
	Blinking	Green	10Mb/100Mb/1000Mb activity
	Off	Off	No LAN linked
RJ-45 Linkage/ Activity(Right)	On	Amber	1000Mb linked/ activity
	On	Green	100Mb linked/activity
	Off	Off	10Mb mode or No LAN linked

NOTE: "Left" and "Right" are viewed from the rear panel.

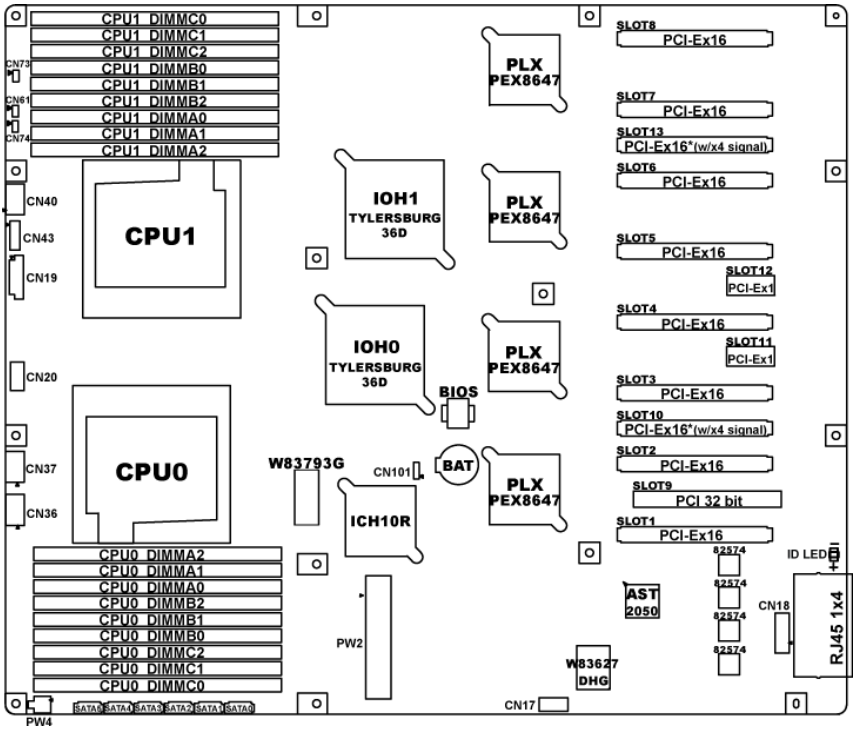
ID LED

LED	State	Color	Description
ID LED	On	Blue	System identified
	Off	Off	System not identified

Note:

Press ID button when the system is AC (Alternating Current) on, then ID LED will show the system is identified with emitting blue light. Users from remote site could also activate ID LED by input a few commands in IPMI, detailed software support please visit **http://www.tyan.com** for latest AST2050 user guide.

1.6.4 Motherboard Layout

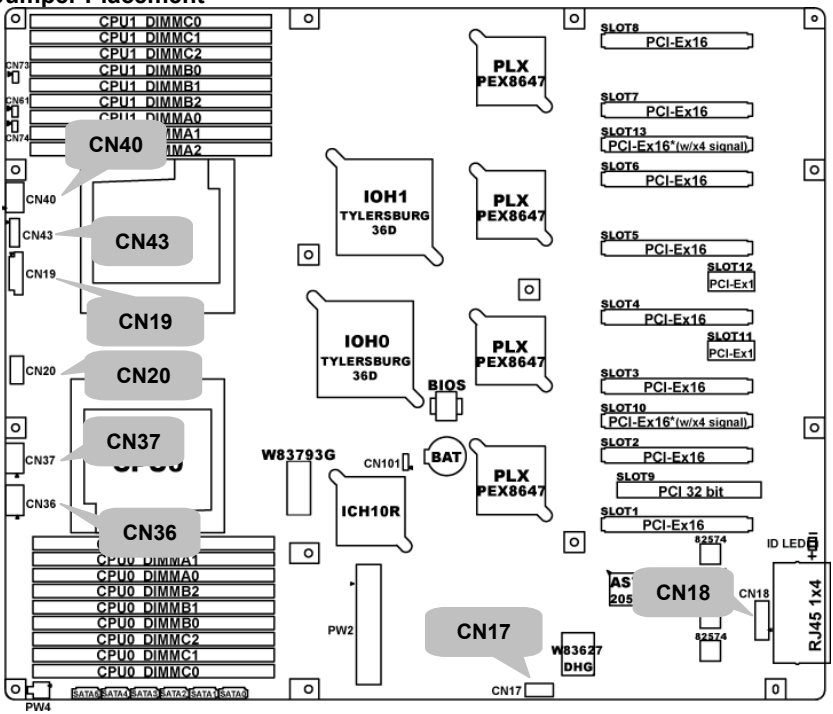


The diagram is representative of the latest board revision available at the time of publishing. The board you receive may not look exactly like the above diagram.

1.6.5 Jumpers & Connectors

Jumper/Connector	Function
CN17/CN20	COM port
CN18	Board-to-Board Receptacle connector
CN19	USB header
CN43	Front Panel header
CN36/CN37/CN40	FAN connector
CN101	Clear CMOS
CN61	System Intrusion header
CN73	NMI button header
CN74	ID button header

Jumper Placement



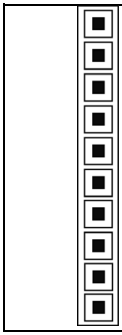
CN43: Front Panel header

Pin	Signal
1	GND
2	PW_LED+
3	PW_LED-
4	WLED+
5	HDD_LED+
6	GND
7	PWR_SW#
8	P3V3_SB
9	RST_SW#
10	GND
11	SDA
12	SCL
13	GND
14	RXD
15	TXD

CN18: Board-to-Board Receptacle connector

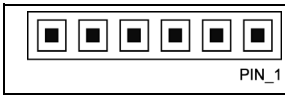
Signal	Pin	Pin	Signal
GND	1	2	GND
RED	3	4	USB0-
GND	5	6	USB0+
GREEN	7	8	GND
GND	9	10	USB1-
BLUE	11	12	USB1+
GND	13	14	GND
HSYNC	15	16	USB2-
VSYNC	17	18	USB2+
GND	19	20	GND
DDC_DATA	21	22	USB3-
DDC_CLK	23	24	USB3+
GND	25	26	GND
NC	27	28	NC
Vcc5_VGA	29	30	Vcc_USB
NC	31	32	Vcc_USB
GND	33	34	Vcc_USB
GND	35	36	Vcc_USB
GND	37	38	Vcc_USB
GND	39	40	Vcc_USB

CN19: USB header

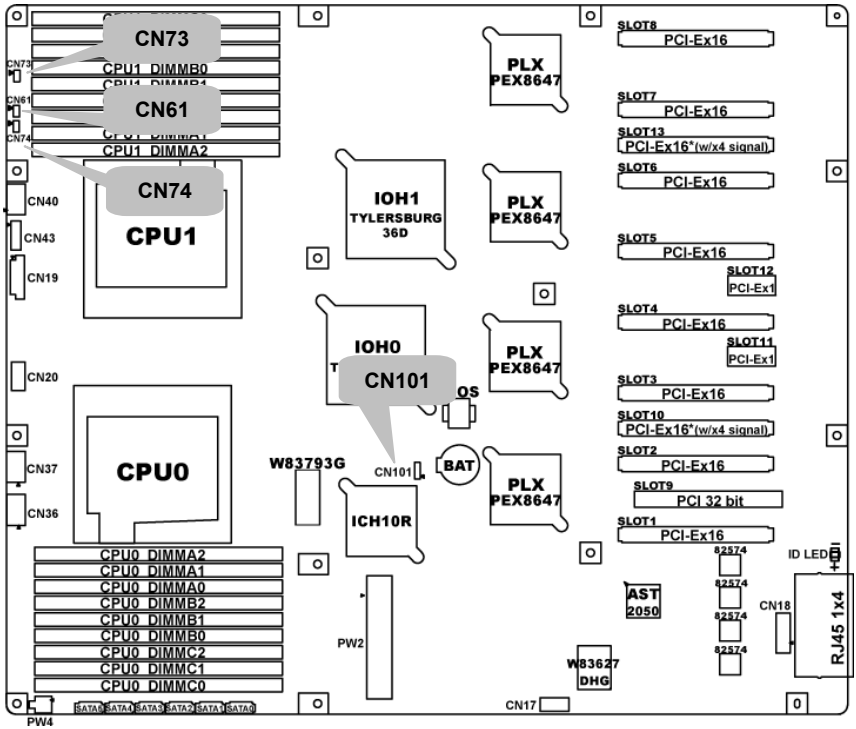


Pin	Signal
1	VCC_USB
2	USB6-
3	USB6+
4	GND
5	GND
6	VCC_USB
7	USB7-
8	USB7+
9	GND
10	GND

CN36/ CN37/ CN40: FAN connector



Pin	1	2	3	4	5	6
Signal	GND	P12V	TACH	PWM	GND	P12V



CN101: Clear CMOS

Pin_3 Pin_1 **Normal (Default)**	You can reset the CMOS settings by using this jumper if you have forgotten your system/setup password or need to clear system BIOS setting. - Power off system and **disconnect both power connectors from the motherboard** - Put jumper cap back to Pin_1 and Pin_2 (default setting) - Use jumper cap to close Pin_2 and Pin_3 for several seconds to Clear CMOS Reconnect power and power on system
Pin_3 Pin_1 **Clear CMOS**	

CN61: System Intrusion header

	Pin	1	2
Pin_1	Signal	GND	INTRUDER_N

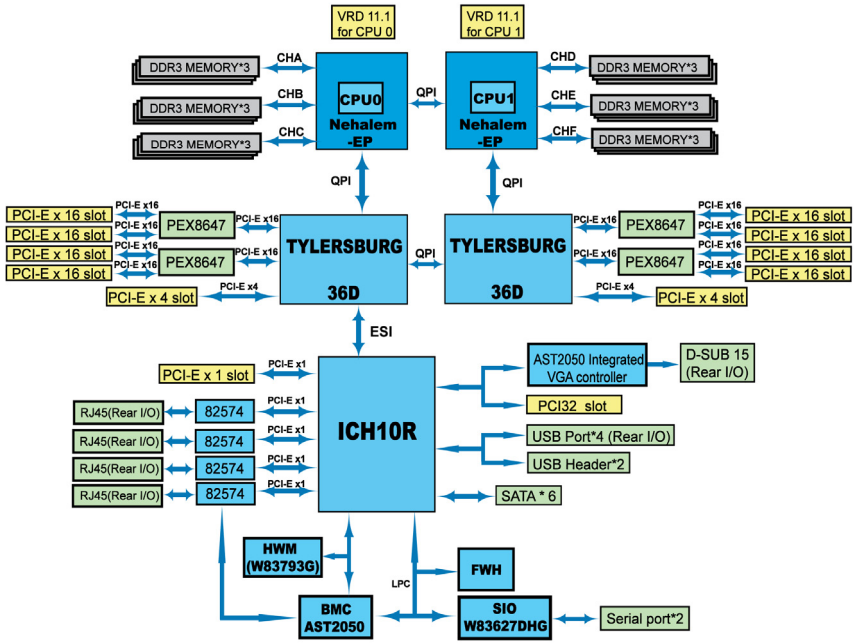
CN73: NMI button header

Pin	1	2
Signal	FP_NMI_N	GND

CN74: ID button header

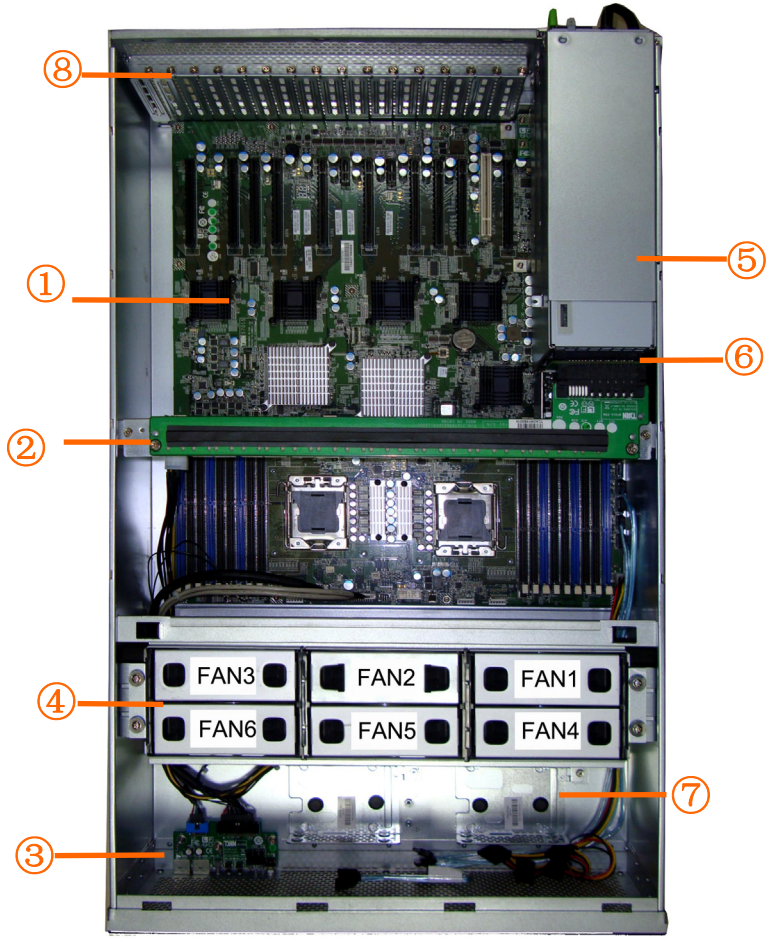
Pin	1	2
Signal	ID_BUTTON_N	GND

1.6.6 System Block Diagram



S7015 Block Diagram

1.6.7 Internal View



①	S7015-CA Main Board	⑤	Power Cage
②	M7015-PDB_R02 PWR Distribution board	⑥	M7015-PBP_R01 PWR Backplane Board
③	M1008_R03 Front LED control Board	⑦	Two 2.5 inch dual HDD Bracket
④	System Fans	⑧	PCI-E Slot Shield

Chapter 2: Setting Up

2.0.1 Before you Begin

This chapter explains how to install the CPUs, CPU heatsinks, memory modules, and hard drives. Instructions on inserting add on cards are also given.

2.0.2 Work Area

Make sure you have a stable, clean working environment. Dust and dirt can get into components and cause malfunctions. Use containers to keep small components separated. Putting all small components in separate containers prevents them from becoming lost. Adequate lighting and proper tools can prevent you from accidentally damaging the internal components.

2.0.3 Tools

The following procedures require only a few tools, including the following:

- A cross head (Phillips) screwdriver
- A grounding strap or an anti-static pad

Most of the electrical and mechanical connections can be disconne--cted using your fingers. It is recommended that you do not use nee--dlenosed pliers to remove connectors as these can damage the soft metal or plastic parts of the connectors.

2.0.4 Precautions

Components and electronic circuit boards can be damaged by discharges of static electricity. Working on a system that is connected to a power supply can be extremely dangerous. Follow the guidelines below to avoid damage to FT77-B7015 or injury to yourself.

- Ground yourself properly before removing the top cover of the system. Unplug the power from the power supply and then touch a safely grounded object to release static charge (i.e. power supply case). If available, wear a grounded wrist strap. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal body of any other grounded appliance.

- Avoid touching motherboard components, IC chips, connectors, memory modules, and leads.

- The motherboard is pre-installed in the system. When removing the motherboard, always place it on a grounded anti-static surface until you are ready to reinstall it.

- Hold electronic circuit boards by the edges only. Do not touch the components on the board unless it is necessary to do so. Do not flex or stress circuit boards.

- Leave all components inside the static-proof packaging that they ship with until they are ready for installation.

- After replacing optional devices, make sure all screws, springs, or other small parts are in place and are not left loose inside the case. Metallic parts or metal flakes can cause electrical shorts.

Note:

All connectors are keyed to only attach one way.

All use the correct screw size as indicated in the procedures.

2.1 Installing Motherboard Components

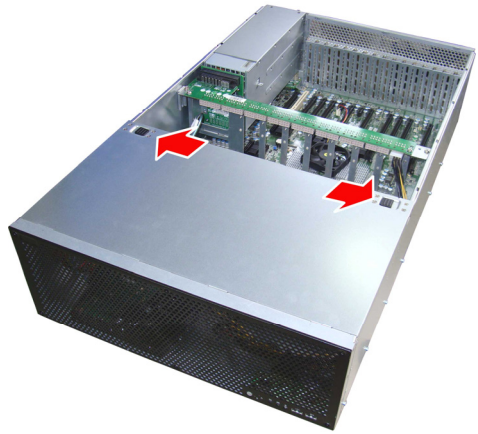
This section describes how to install components on to the motherboard, including CPUs, memory modules and add on cards.

2.1.1 Removing the Chassis Cover

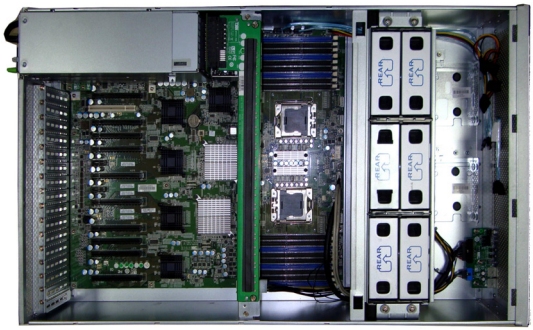
Follow these instructions to remove FT77-B7015 chassis cover.

1. Thumb two screws on the back side as show in the small diagram. Then slide the top cover out.

2. Push the two buttons in the direction of the arrow, lift the other side top cover up.



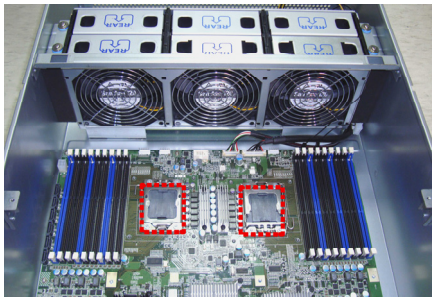
3. Here is the overview after the chassis cover was removed.

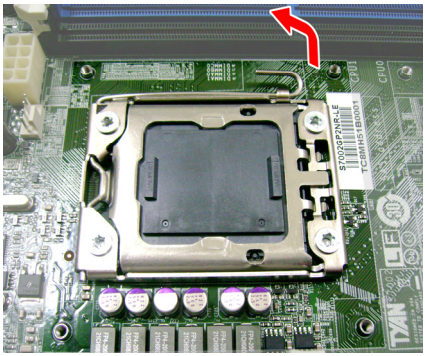


2.1.2 Installing the CPU and Heat sink

Follow the steps below on installing CPUs and CPU heat sinks.

1. Locate the CPU socket.

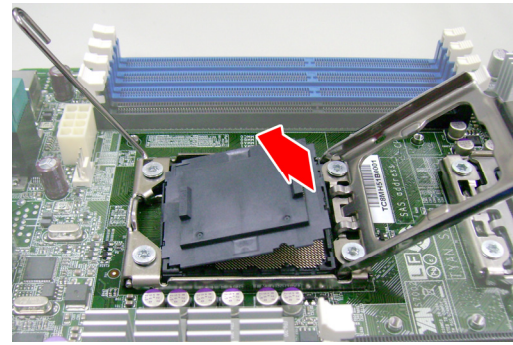


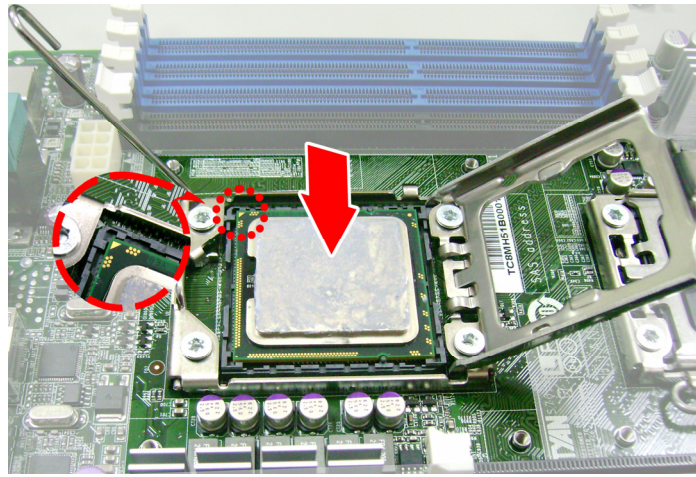


2. Press the lever and unlock the CPU socket.

A

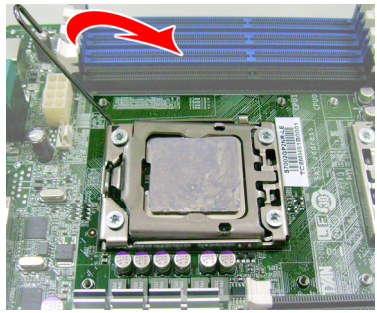
3. Lift the CPU protection cap up and lay the CPU into the socket(A), ensuring pin1 is correctly located(B);



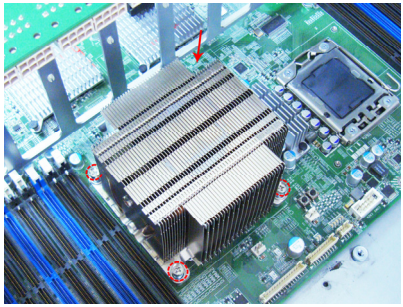


B

4. Close the socket cover and press the CPU lever down to secure the CPU;



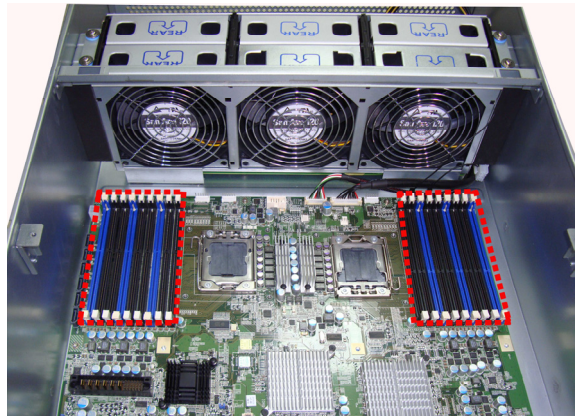
5. Place the heatsink on top of the CPU and secure it with 4 screws.



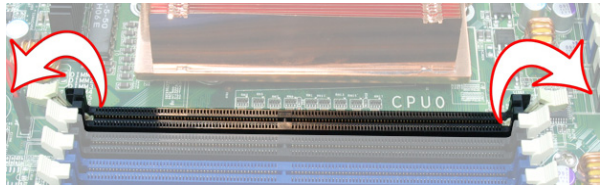
2.1.3 Installing the Memory

Follow these instructions to install the memory modules onto the motherboard.

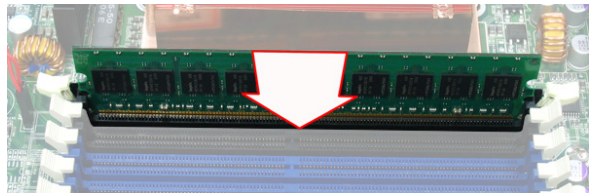
1. Locate the memory slots on the motherboard.

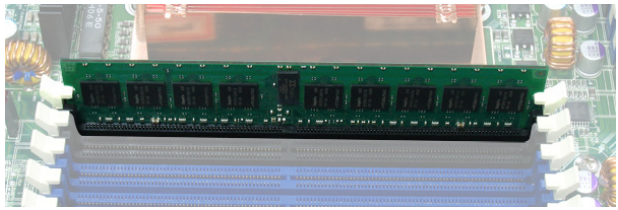


2. Press the memory slot locking levers in the direction of the arrows as shown in the following illustration.



3. Align the memory module with the slot. When inserted properly, the memory slot locking levers lock automatically onto the indentations at the ends of the module.





Note:

1). For the DIMM number please refer to "Chapter 1.6.4 – Motherboard Layout" for memory installation.

2). Refer to the memory population option table for recommended memory installation instruction.

3). " √ " indicates a populated DIMM slot.

Memory Population Option Table

To achieve the best performance, TYAN® strongly recommended memory installation configuration as listed below:

1. Single CPU installed (CPU0 Only)

Quantity of memory DIMM Slot	1	3	6	9
CPU0 DIMMA 0	√	√	√	√
CPU0 DIMMA 1			√	√
CPU0 DIMMA 2				√
CPU0 DIMMB 0		√	√	√
CPU0 DIMMB 1			√	√
CPU0 DIMMB 2				√
CPU0 DIMMC 0		√	√	√
CPU0 DIMMC 1			√	√
CPU0 DIMMC 2				√
CPU1 DIMMA 0				
CPU1 DIMMA 1				
CPU1 DIMMA 2				
CPU1 DIMMB 0				
CPU1 DIMMB 1				
CPU1 DIMMB 2				
CPU1 DIMMC 0				
CPU1 DIMMC 1				
CPU1 DIMMC 2				

2. Single CPU installed (CPU1 Only)

Quantity of memory DIMM Slot	1	3	6	9
CPU0 DIMMA 0				
CPU0 DIMMA 1				
CPU0 DIMMA 2				
CPU0 DIMMB 0				
CPU0 DIMMB 1				
CPU0 DIMMB 2				
CPU0 DIMMC 0				
CPU0 DIMMC 1				
CPU0 DIMMC 2				
CPU1 DIMMA 0	√	√	√	√
CPU1 DIMMA 1			√	√
CPU1 DIMMA 2				√
CPU1 DIMMB 0		√	√	√
CPU1 DIMMB 1			√	√
CPU1 DIMMB 2				√
CPU1 DIMMC 0		√	√	√
CPU1 DIMMC 1			√	√
CPU1 DIMMC 2				√

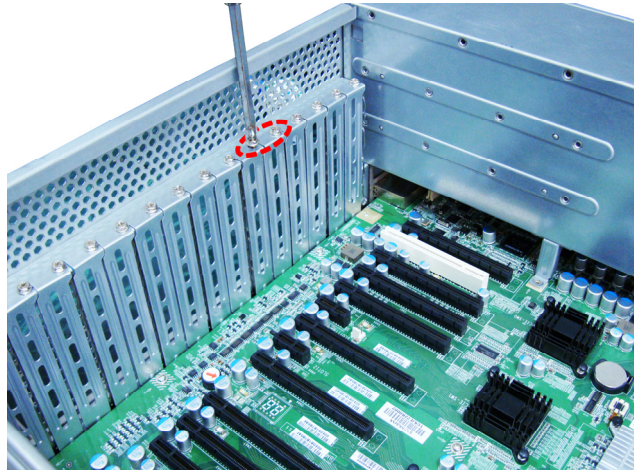
3. Dual CPU installed (CPU0 & CPU1)

Quantity of memory DIMM Slot	1	2	6	12	18
CPU0 DIMMA 0	√	√	√	√	√
CPU0 DIMMA 1				√	√
CPU0 DIMMA 2					√
CPU0 DIMMB 0			√	√	√
CPU0 DIMMB 1				√	√
CPU0 DIMMB 2					√
CPU0 DIMMC 0			√	√	√
CPU0 DIMMC 1				√	√
CPU0 DIMMC 2					√
CPU1 DIMMA 0		√	√	√	√
CPU1 DIMMA 1				√	√
CPU1 DIMMA 2					√
CPU1 DIMMB 0			√	√	√
CPU1 DIMMB 1				√	√
CPU1 DIMMB 2					√
CPU1 DIMMC 0			√	√	√
CPU1 DIMMC 1				√	√
CPU1 DIMMC 2					√

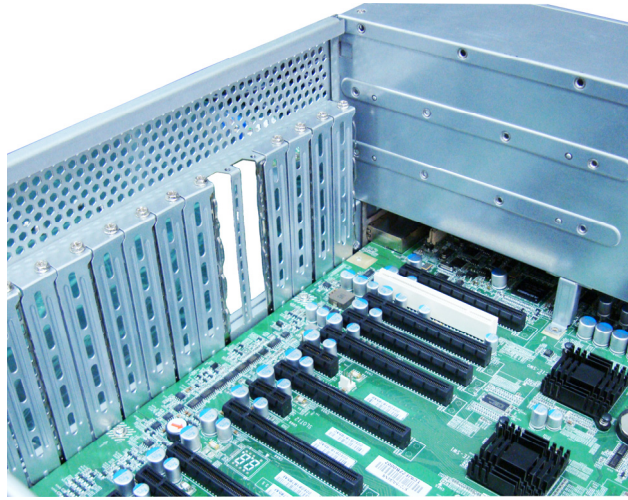
2.1.4 Installing Expansion Cards

FT77-B7015 has **eight** expansion slots which can support GPU (Graphic Processing Unit) card. Follow these instructions to install expansion cards.

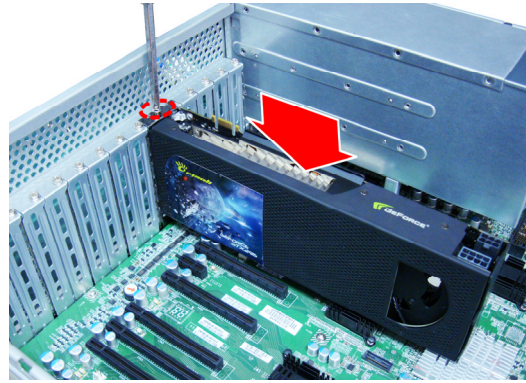
1. Locate the expansion slot on the motherboard, unscrew the bracket from the slot you want to use.



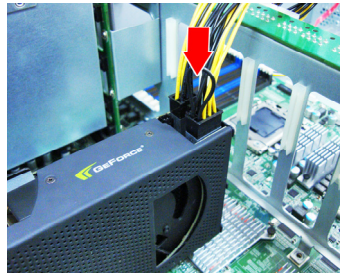
2. Take the brackets out from the slot.

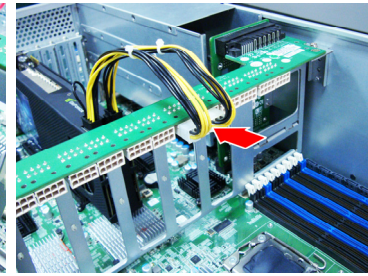


3. Insert the card into the slot and secure it with the screws you removed from the bracket.

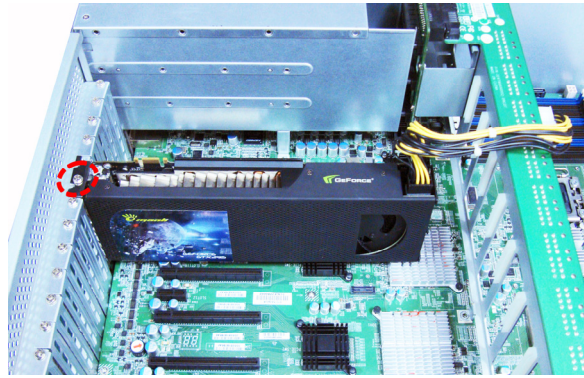


4. Connect the cables between the expansion card and the power distribution board, the connectors you use should match with the slot you add the card with.





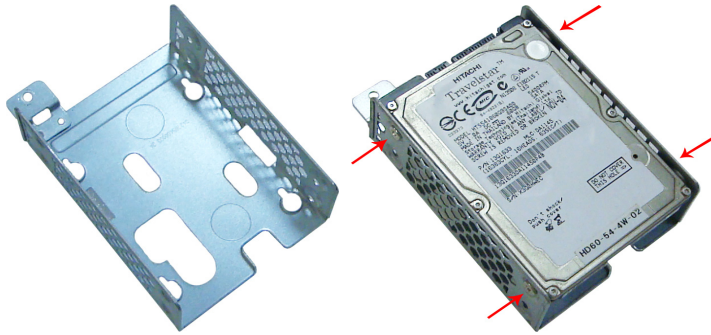
5. Here is the end of the add on card installation.



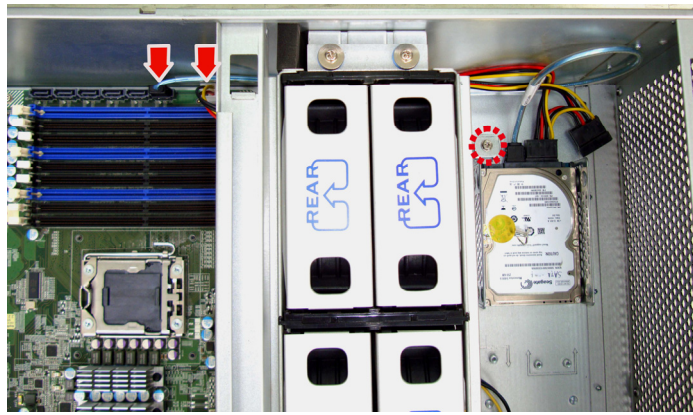
2.1.5 Installing Hard Drives

The FT77-B7015 supports four internal 2.5" SATAII hard disks. Each bracket could be installed with two hard disks. Follow these instructions to install a hard drive.

1. Unscrew the 2.5'' bracket out from the chassis, place a 2.5'' hard drive into the HDD tray and secure it using four flat screws.



2. Reinsert the HDD bracket into the chassis, secure it with one screw and connect both power cable and SATA cable.



2.2 Rack Mounting

After installing the necessary components, FT77-B7015 can be mounted in a rack using the supplied rack mounting kit.

Rack mounting kit

Rail with Bracket x 2

Mounting Ears x 2

Screw Sack x 1

2.2.1 Installing the Server in a Rack

Follow these instructions to mount the FT77-B7015 into an industry standard 19" rack.

Note:

Before mounting FT77-B7015 in a rack, ensure that all internal components have been installed and that the unit has been fully tested. Maintenance can be performed on the unit while in a rack but it is preferable to install the device in a fully operational condition.

Screw Sack

A **B** **C**

Including:

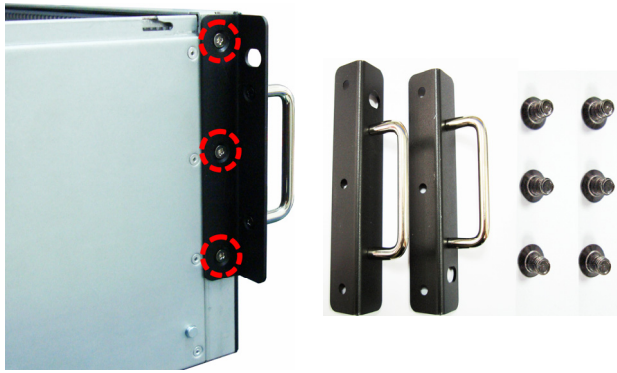
A: M5 Washer------ 8pcs

B: M5 x 10 ----------8pcs

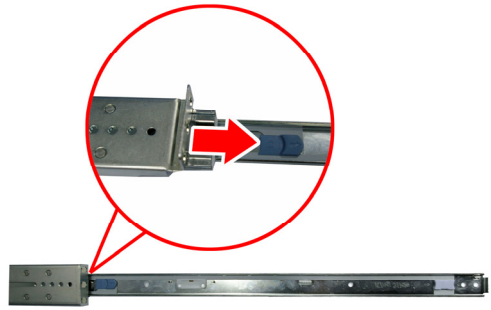
C: M5 x13 ----------2pcs

2.2.2 Installing the inner Rails to the Chassis

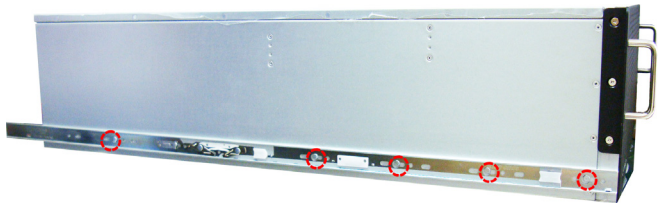
1. Screw the mounting ear to each side of FT77 as shown using 3 screws from the supplied screws kit.



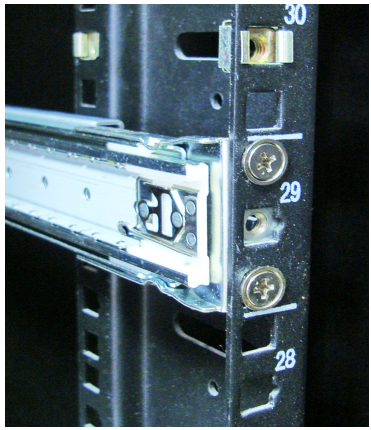
2. Push the latch key and draw out the inner rails from sliding rails.



3. Secure inner rails to both sides of the chassis, be sure the five mounting holes are correctly matched.



2.2.3 Installing the Outer Rails to the Rack

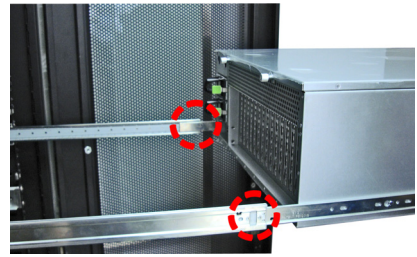


Secure the outer rail to the rack using the rail and 4 M5 x 10 screws with washer for each side.

2.2.4 Rack mounting the Server

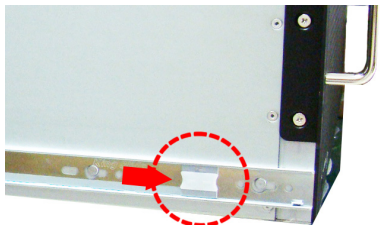
1. Draw out the middle rail till the latch position.

2. Lift the chassis and then insert the inner slide rails into the middle rails.



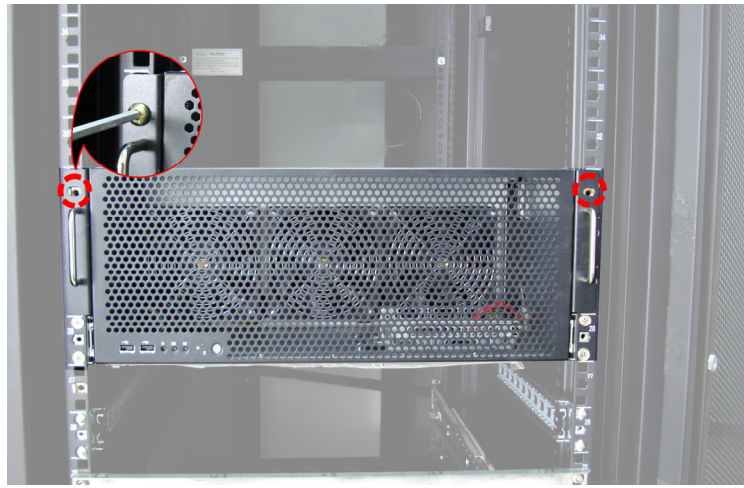
3. Push the chassis in and pull the latch key (A). Then push the whole system into the rack (B).

A



B

4. Secure the mounting ears of chassis to the rack with 2 M5 x 13 screws.



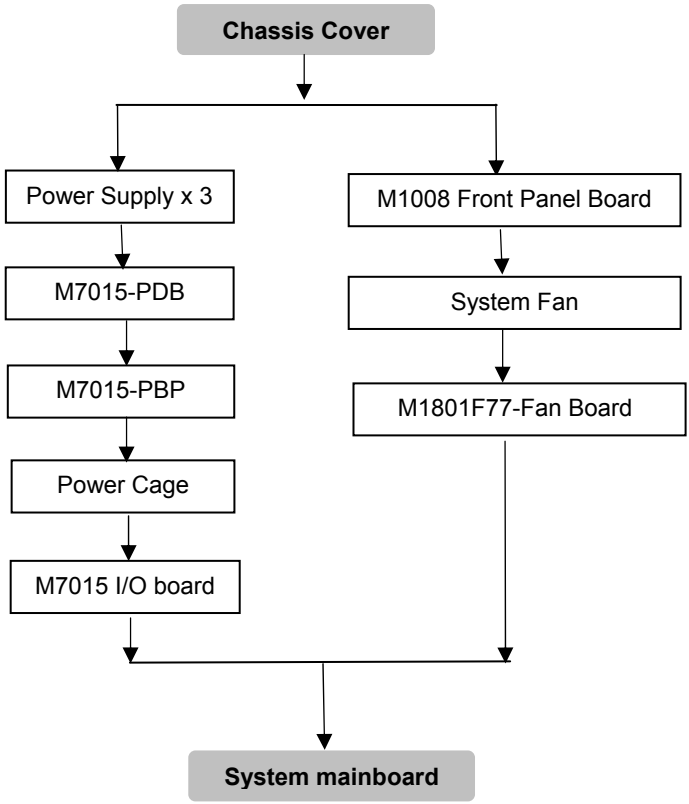
Chapter 3: Replacing Pre-Installed Components

3.1 Introduction

This chapter explains how to replace the pre-installed components, including the Motherboard, M1008 front panel board, M7015 power distribution board, M7015 power backplane, system fan, power cage etc.

3.2 Disassembly Flowchart

The following flowchart outlines the disassembly procedure.



3.3 Removing the Cover

Before replacing any parts you must remove the chassis cover.

Follow Chapter 2.1.1 to remove the cover of FT77-B7015.

3.4 Replacing the Power Supply

3.4.1 Replace the power supply

To replace the power supply follow these instructions.

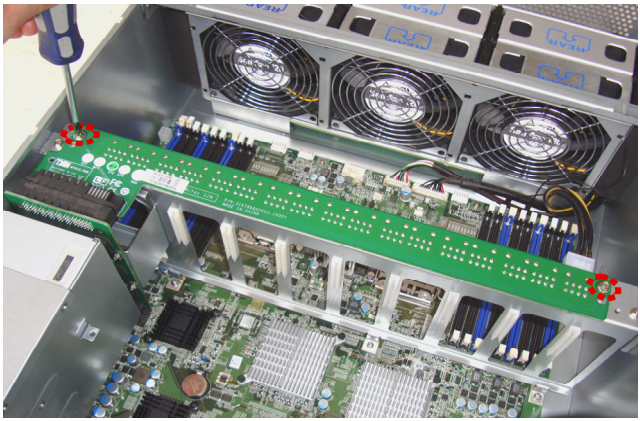
1. Press the tab as shown in the diagram and pull out the power.

2. Free the power from the power socket.

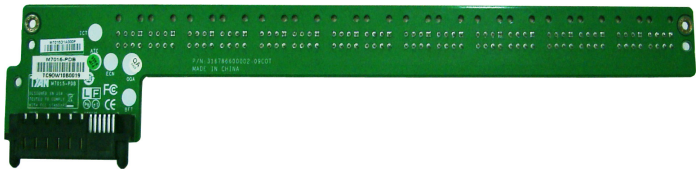
3. Replace a new single power (FRU NO: CPSU-0420) and reinsert it into the power socket following the above steps in reverse.

3.4.2 Replacing M7015 Power Distribution Board

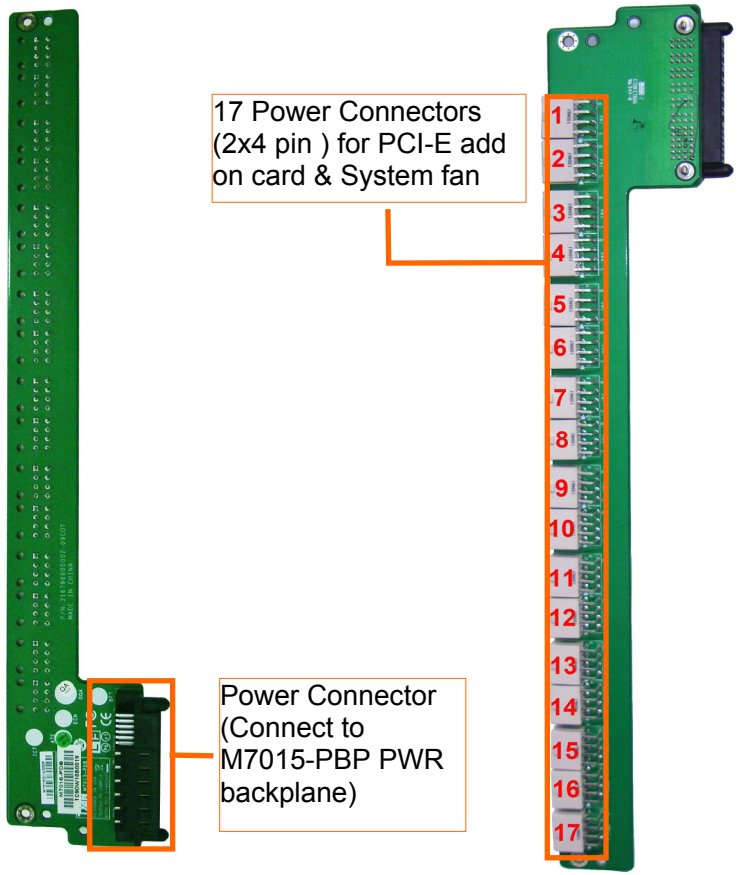
1. Remove the 2 screws securing M7015-PDB_R02 to the bracket.



2. Renew the M7015-PDB and fix it to the chassis following the step in reverse.

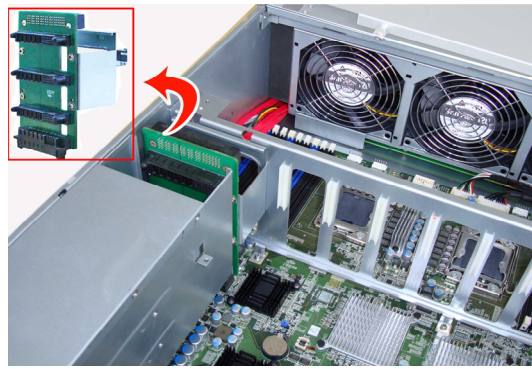


3.4.3 M7015 Power Distribution Board Features

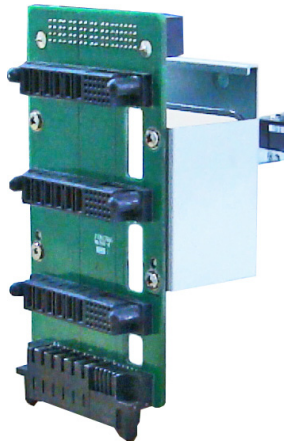


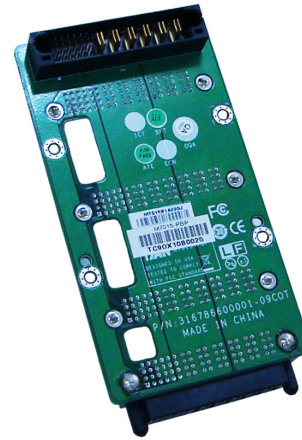
3.4.4 Replace the M7015 power backplane

1. Lift out the M7015-PBP_R01 bracket after pulling out the power Supplies and M7015-PDB.



2. Remove the 4 screws securing M7015-PBP to the bracket.

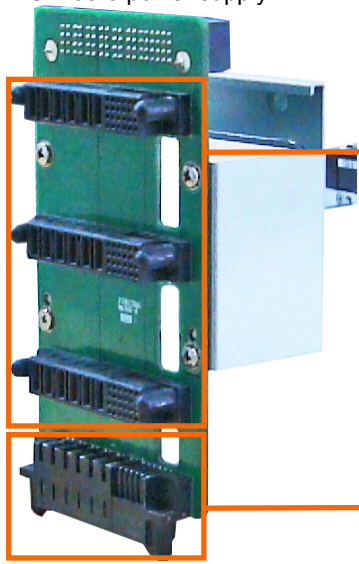




3. Renew the M7015-PBP and fix it to the chassis following the steps in reverse.

3.4.5 M7015 power backplane Features

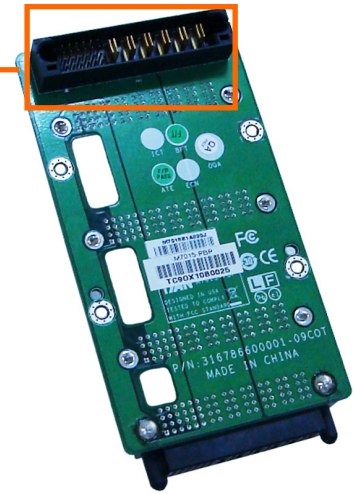
M7015-PBP Power backplane support FT77-B7015 with EMERSON DC1200-3 power supply.



On board PWR Connector * 3 (Vertical, connect to PWR supply)

PWR Connector (Right angle, connect to MB)

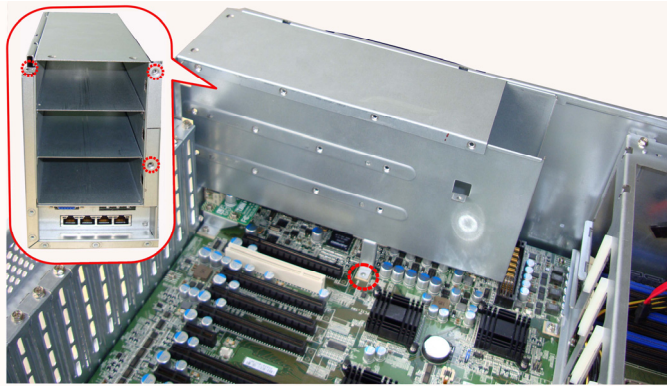
PWR Connector (Vertical, connect to M7015-PDB PWR distribution board)



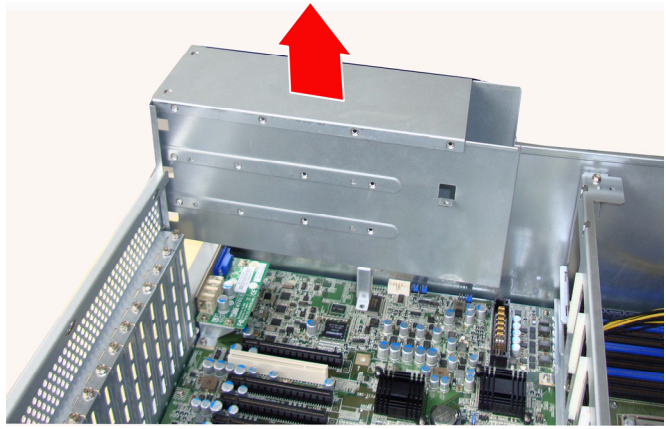
3.5 Replacing M7015 I/O Board

After remove power supplies and M7015 PBP, you can replace the M7015 I/O board_R02 follow these instructions.

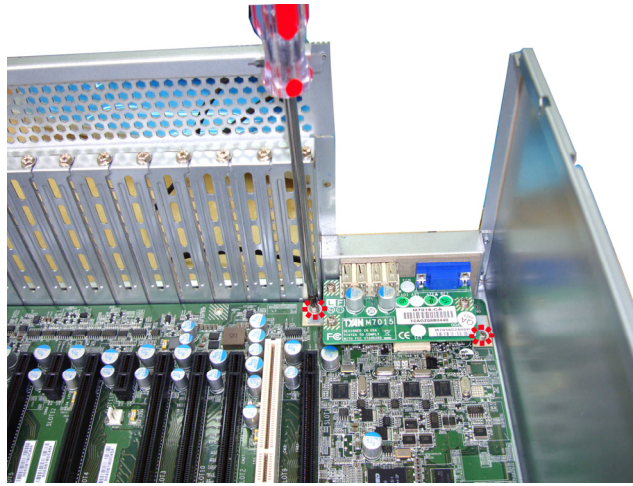
1. Remove the power cage from the chassis with four screws.



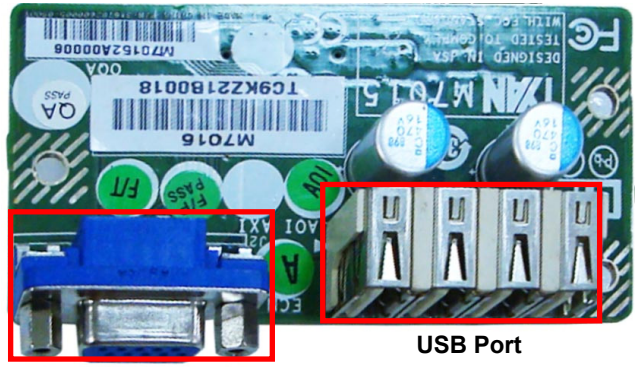
2. Lift the power cage out of the chassis and locate the M7015 I/O board.



3. Unscrew M7015 I/O board with its bracket and carefully pull it up.



4. Renew the M7015 I/O board and fix it to the chassis following the step in reverse.

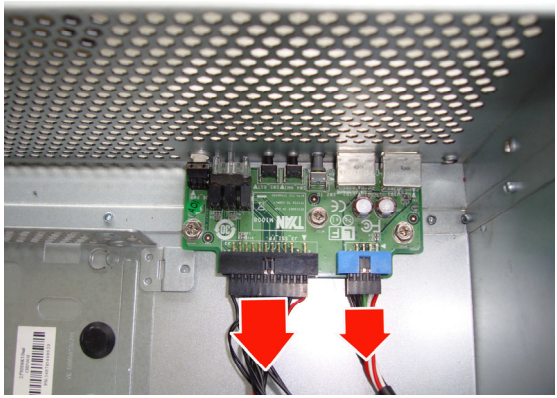


3.6 Replacing the LED Control Board

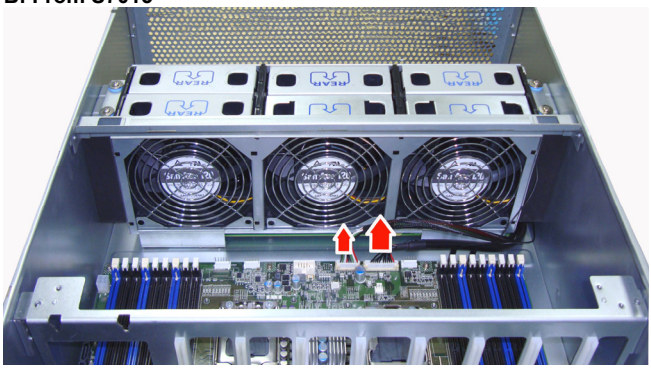
Follow these instructions to replace the M1008 LED control board_R03.

1. Unplug the cables from the connectors on M1008 and main board.

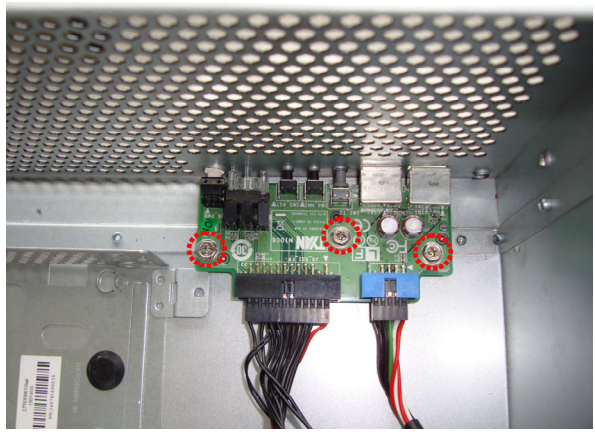
A: From M1008



B: From S7015

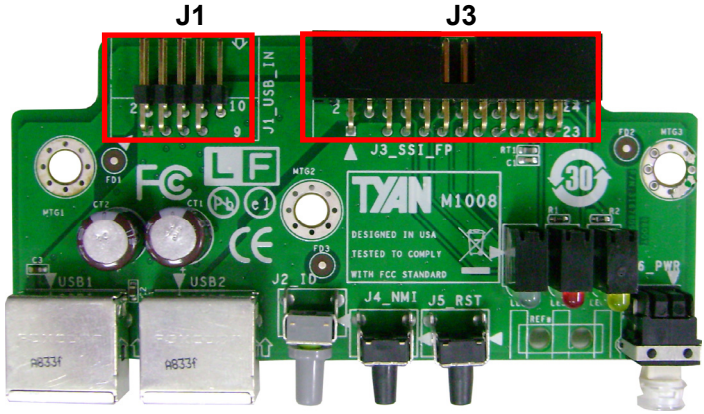


2. Remove the three screws securing the LED control board unit to the chassis.



3. Renew the board and place it back to the chassis following the above procedures in reverse.

3.6.1 M1008 LED Control Board Features



3.6.2 M1008 LED Control Board Connector Pin Definition

J1: USB Header

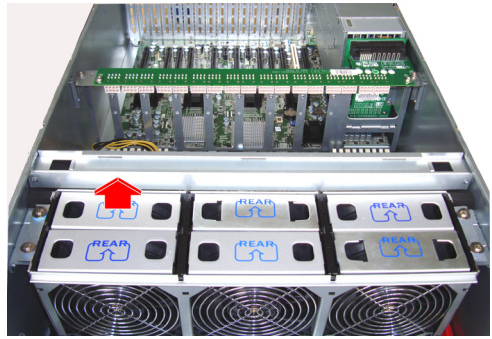
Definition	Pin	Pin	Definition
VCC	1	2	VCC
USB1-	3	4	USB2-
USB1+	5	6	USB2+
GND	7	8	GND
Key	9	10	GND

J3: SSI

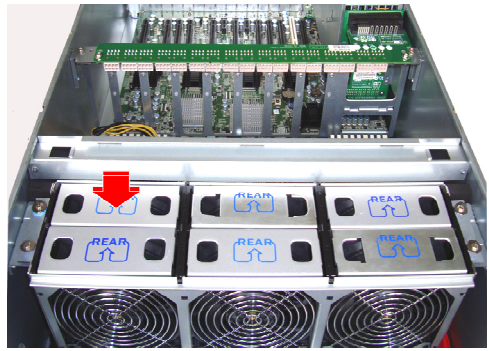
Definition	Pin	Pin	Definition
PW_LED+	1	2	VCC
KEY	3	4	ID_LED+
PW_LED-	5	6	ID_LED-
HD/LAN3 LED+	7	8	SYS_FAULT1-
HD/LAN3 LED-	9	10	SYS_FAULT2-
PWR_SW+	11	12	LAN1_LED+
PWR_SW-	13	14	LAN1_LED-
RESET+	15	16	ICH_SMBDAT
RESET-	17	18	ICH_SMBCLK
ID_SW+	19	20	INTRU#
TEMP_SENSER	21	22	LAN2_LED+
EXT_INT	23	24	LAN2_LED-

3.7 Replacing the System Fan

1. Lift the fan which you need to replace up.

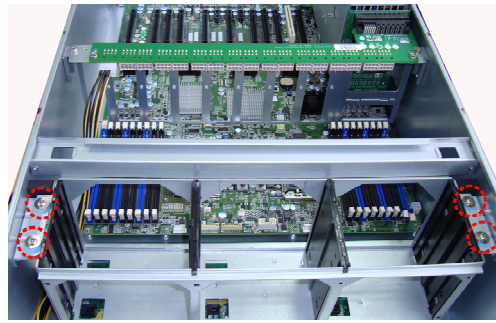


2. Reinsert a new fan.

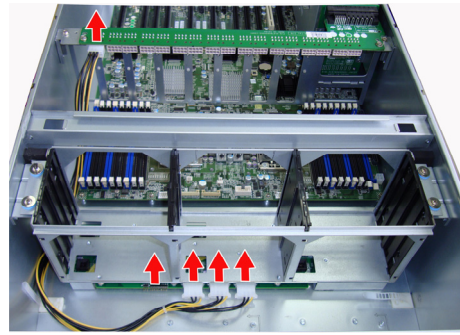


3.8 Replacing the M1801F77-Fan Board

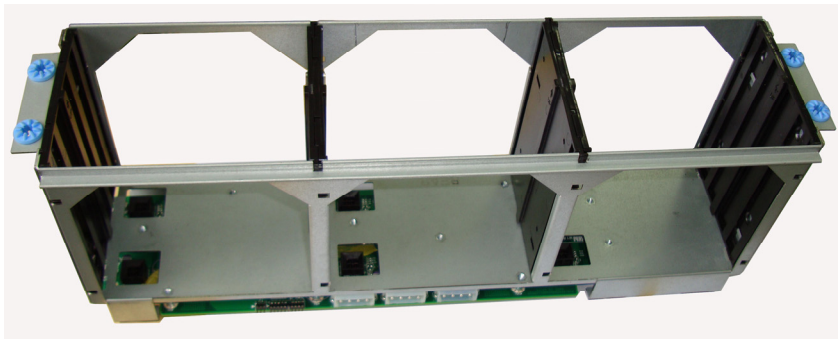
1. Remove the four screws securing the fan holder.

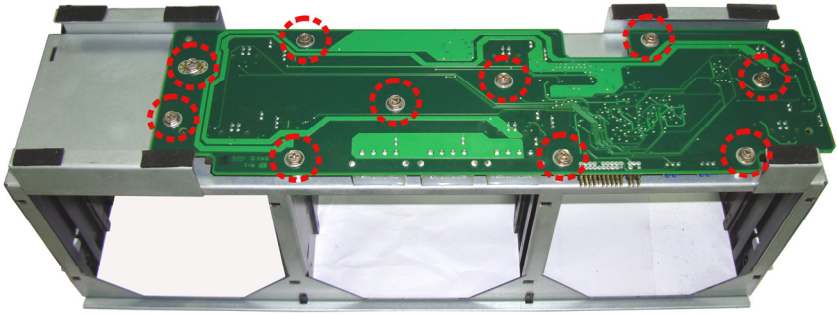


2. Disconnect system fan cables from the chassis.



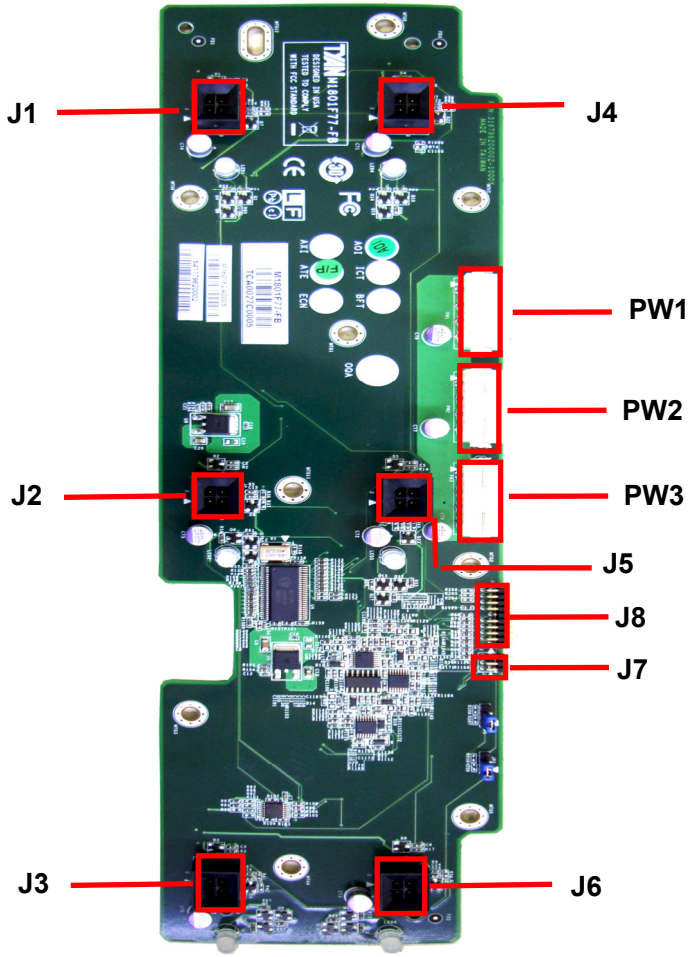
3. Lift the fan holder up and turn it upside down, remove the ten screws.





4. Renew the board and tighten the screw place it back to the chassis following the above procedures in reverse.

3.8.1 M1801F77-Fan Board Features

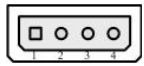


3.8.2 M1801F77 Fan Board Connector Pin Definition

J1~J6: 4 pin Fan connector

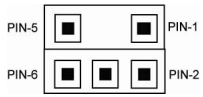
Definition	Pin	Pin	Definition
GND	1	2	VDD+12V
TACK	3	4	PWM

PW1/PW2/PW3: Big 4 pin Power connector



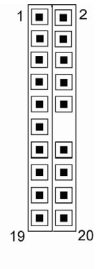
Definition	Pin	Pin	Definition
VDD+12V	1	2	GND
GND	3	4	VCC+5V

J7: fan signal control



Definition	Pin	Pin	Definition
NC	1	2	SDA
KEY	3	4	SCL
NC	5	6	NC

J8: fan control header

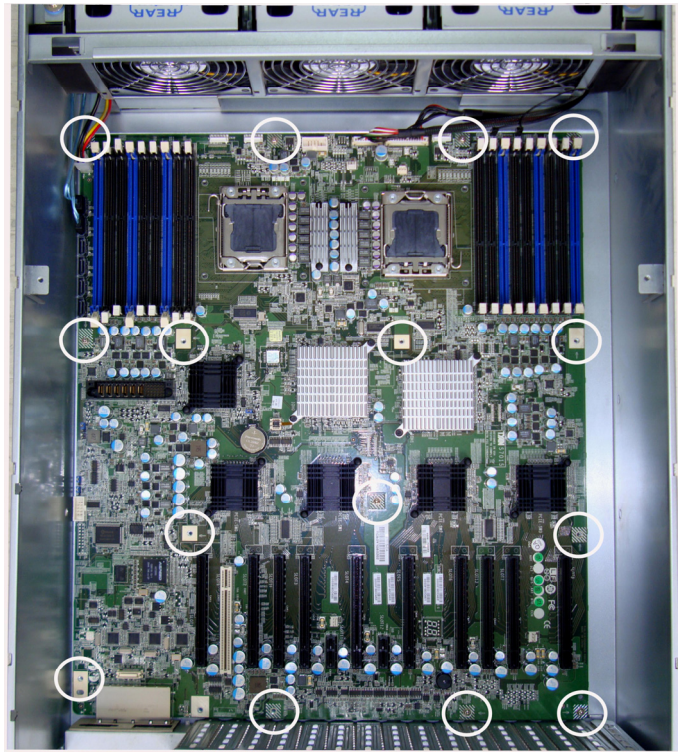


Definition	Pin	Pin	Definition
TACH1	1	2	NC
TACH2	3	4	NC
TACH3	5	6	TACH6
TACH4	7	8	NC
TACH5	9	10	NC
GND	11	12	KEY
PWR2	13	14	PWR1
NC	15	16	NC
NC	17	18	NC
NC	19	20	PWR3

3.9 Removing the Motherboard

After removing all of the aforementioned cables, follow these instructions to remove the motherboard from the chassis.

1. Remove the heat sinks and processors if installed.
2. Remove the 15 screws securing the motherboard to the chassis.



3. Carefully lift the motherboard from the chassis as S7015-CA is too large to lift straight out .Lift the front edge of the board to an angle of about 45 then slides the whole board out.

Appendix I: BIOS Differences

The BIOS for FT77-B7015 is similar to S7015-CA while there are some differences in menus. The following table displays those differences in details. You can select item ***Hardware Health Configuration*** in the Advanced Settings to configure Auto Fan Control Function.

Hardware Health Configuration Sub-Menu

BIOS Setup Utility Main **Advanced** PCI/PnP Boot Security Chipset Exit	
Advanced Settings	
WARING: Setting wrong values in below sections may cause system to malfunction. ▸ CPU Configuration ▸ IDE Configuration ▸ Super IO Configuration ▸ USB Configuration ▸ ACPI Configuration ▸ AHCI Configuration ▸ **Hardware Health Configuration** ▸ I/O Virtualization ▸ IPMI 2.0 Configuration ▸ Intel VT-d Configuration ▸ PCI Express Configuration ▸ Remote Access Configuration	←→ Select Screen ↑↓ Select Item Enter Go to Sub Screen F1 General Help F10 Save and Exit ESC Exit

Hardware Health Configuration Sub-Menu

You can use this screen to view the Hardware Health Configuration Settings.

BIOS Setup Utility Main **Advanced** PCI/PnP Boot Security Chipset Exit	
Hardware Health Configuration	Enables Hardware Health Monitoring Device.
Auto FAN Control [Enabled]	
Hardware Health Event Monitoring	
▸ Sensor Data Register Monitoring	←→ Select Screen ↑↓ Select Item +/- Change Option Tab Select Field F1 General Help F10 Save and Exit ESC Exit

Feature	Option	Description
Hardware Health Configuration		
Auto FAN Control	Disabled	FAN power duty cycle is auto dynamic programmed in selected temperature range. Disabled: Fan Power On Enabled: Fan Power Duty Cycle is controlled by Tcontrol.
	Enabled	

Sensor Data Register Monitoring Sub-Menu

BIOS Setup Utility

Advanced

ID#	NAME	READING	STATUS	
0F	CPU0 Below Tmax	: xx°C	OK	
11	CPU1 Below Tmax	: xx°C	OK	
12	Board Temp1	: xx°C	OK	
13	Board Temp2	: xx°C	OK	
14	Board Temp3	: xx°C	OK	
0A	CPU0 Vcore	: x.xxx V	OK	
0B	CPU1 Vcore	: x.xxx V	OK	
05	1.5V(near ICH)	: x.xxx V	OK	
06	1.1V(near IOH)	: x.xxx V	OK	
04	5V	: x.xxx V	OK	← → Select Screen
01	3.3V	: x.xxx V	OK	↑↓ Select Item
02	12V	: x.xxx V	OK	+/- Change Option
03	VBattary	: x.xxx V	OK	Tab Select Field
22	FAN1	: xxxx RPM	OK	F1 General Help
23	FAN2	: xxxx RPM	OK	F10 Save and Exit
24	FAN3	: xxxx RPM	OK	ESC Exit

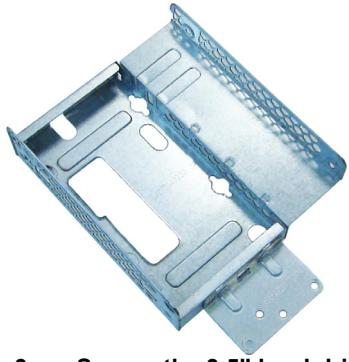
Read only. It can not be modified in user mode.

Appendix II: Installing the Internal 3.5”HDD

Considering for a multiple choice, the 2.5” SATA HDD could be replaced by an internal 3.5” SATA HDD in your FT77-B7015. You can choose flexibly in practical application.

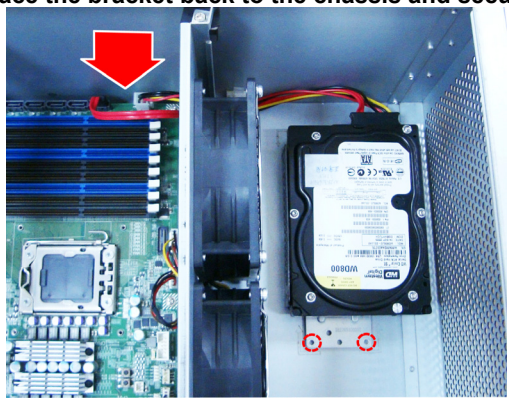
Step 1: Follow the instructions in Chapter 2.1.5 to remove the pre--installed 2.5’’ HDD Bracket;

Step 2: Place a 3.5’’ hard drive into the 3.5’’ HDD Bracket;



Step 3: Secure the 3.5” hard drive using four screws;

Step 4: Place the bracket back to the chassis and secure it as below:



Step 5: Connect the data cables.

Appendix III: Cable Connection Tables

1. FP Ctrl & USB Cable

M1008 FP board to S7015-CA MB		
M1008 FP board	**Connect to**	**S7015 MB**
J3	→	CN43
J1	→	CN19

2. System Fan Cable

Fan board(3 fan Power connector) to M7015 PDB		
Fan board	**Connect to**	**M7015-PDB**
Fan Power1	→	PW17
Fan Power2	→	
Fan Power3	→	
J7	→	M1008 FPB

3. SATA & SATA PWR Cable

HDD device to S7015-CA MB		
HDD device	**Connect to**	**S7015 MB**
SATA cable 1 for HDD1	→	CN14
SATA cable 2 for HDD2	→	CN15
SATA PWR cable for HDD1 & HDD2	→	PW4

4. GPU PWR Cable

M7015-PDB to GPU Card		
M7015-PDB	**Connect to**	**GPU card**
PW1 or PW2	→	GPU card 1
PW3 or PW4	→	GPU card 2
PW5 or PW6	→	GPU card 3
PW7 or PW8	→	GPU card 4
PW9 or PW10	→	GPU card 5
PW11 or PW12	→	GPU card 6
PW13 or PW14	→	GPU card 7
PW15 or PW16	→	GPU card 8

Appendix IV: FRU Parts Table

FT77-B7015 FRU Parts					
Item	Model Number	Part Number	Picture	Quantity	Description
Power Supply	CPSU-0420	471100600034		3	1200W,Power Supply, EMERSON DS1200-3
FAN	CFAN-0420	336252012393		6	120x120x38MM FAN;12V,9GV1212P1J051
Cables	CCBL-146I	422786600004		8	2x4-pin auxiliary power cables (for GPU cards)
Heat Sink &Cooler	CHSK-0410	343786600001		2	HEATSINK;AL/CU,SOLDERLING+PIPE,1366-CPU-PASSIVE
Rack Mounting Part	CRAL-0150	340783300039		1	SLIDING-RAIL ASSY
	CEAR-0150	452786600002		1	MOUNTING EAR KIT with Right and Left EAR

Note:

The table is subject to change without notice. Please visit our web site at http://www.tyan.com for latest update.

Appendix V: Technical Support

If a problem arises with your system, you should first turn to your dealer for direct support. Your system has most likely been configured or designed by them and they should have the best idea of what hardware and software your system contains. Hence, they should be of the most assistance for you. Furthermore, if you purchased your system from a dealer near you, take the system to them directly to have it serviced instead of attempting to do so yourself (which can have expensive consequences).

If these options are not available for you then TYAN® Computer Corporation can help. Besides designing innovative and quality products for over a decade, TYAN® has continuously offered customers service beyond their expectations. TYAN's website (www.tyan.com) provides easy-to-access resources such as in-depth Linux Online Support sections with downloadable Linux drivers and comprehensive compatibility reports for chassis, memory and much more. With all these convenient resources just a few keystrokes away, users can easily find the latest software and operating system components to keep their systems running as powerful and productive as possible. TYAN® also ranks high for its commitment to fast and friendly customer support through email. By offering plenty of options for users, TYAN® serves multiple market segments with the industry's most competitive services to support them.

"TYAN's tech support is some of the most impressive we've seen, with great response time and exceptional organization in general" - Anandtech.com

You can contact TYAN® Technical Support by using our Online Support System:

http://12.230.196.231/helpstar/hsPages/login.aspx?ReturnUrl=%2fhelpstar%2fhsPages%2fDefault.aspx

Help Resources:

1. See the beep codes section of this manual.
2. See the TYAN® website for FAQ's, bulletins, driver updates, and other information: http://www.tyan.com
3. Contact your dealer for help BEFORE calling TYAN®.
4. Check the TYAN® user group: alt.comp.periphs.mainboard.TYAN®

Returning Merchandise for Service

During the warranty period, contact your distributor or system vendor FIRST for any product problems. This warranty only covers normal customer use and does not cover damages incurred during shipping or failure due to the alteration, misuse, abuse, or improper maintenance of products.

NOTE: A receipt or copy of your invoice marked with the date of purchase is required before any warranty service can be rendered. You may obtain service by calling the manufacturer for a Return Merchandise Authorization (RMA) number. The RMA number should be prominently displayed on the outside of the shipping carton and the package should be mailed prepaid. TYAN® will pay to have the board shipped back to you

TYAN® FT77-B7015 User's Manual v1.1

Document part No.: D2086-100